WHAT IS CLAIMED IS:

1. A method for continuously mixing aqueous solutions, comprising the steps of:

providing a flow controlled turbulent diluent stream;

adding a plurality of chemically incompatible concentrate solutions to said turbulent diluent stream in such a manner that none of the ingredients of the concentrate solutions adversely chemically react with each other; and

thereby forming a diluted mixture of said concentrate solutions.

2. The method of claim 1, further comprising the step of:

adding a first of said chemically incompatible concentrate solutions to said turbulent diluent stream sufficiently in advance of the addition of a second of said chemically incompatible concentrate solutions to prevent the ingredients of said first and said second chemically incompatible concentrate solutions from adversely chemically reacting with each other.

3. The method of claim 2, wherein said step of adding comprises the step of:

adding said first of said chemically incompatible concentrate solutions to said turbulent diluent stream in a manner that is approximately radially disposed from the addition of said second of said chemically incompatible concentrate solutions to prevent the ingredients of said first and said second chemically incompatible concentrate solutions from adversely chemically reacting with each other.

4. The method of claim 2, wherein said step of adding comprises the step of:

adding said first of said chemically incompatible concentrate solutions to said turbulent diluent stream linearly upstream of the addition of said second of chemically incompatible concentrate solutions to prevent the ingredients of said

first and said second chemically incompatible concentrate solutions from adversely chemically reacting with each other.

5. The method of claim 2, further comprising the step of:

adjusting a pH level of said turbulent diluent stream.

6. The method of claim 5, wherein said step of adjusting a pH level comprises the step of:

adding an acid solution to said turbulent diluent stream to reduce said pH level.

7. The method of claim 5, wherein said step of adjusting a pH level comprises the step of:

adding a caustic solution to said turbulent diluent stream to increase said pH level.

8. The method of claim 5, wherein said step of adjusting a pH level comprises the steps of:

adding an acid solution to said turbulent diluent stream to decrease said pH level; and

adding a caustic solution to said turbulent diluent stream to increase said pH level.

9. The method of claim 5, wherein said step of adjusting a pH level comprises the step of:

adjusting a pH level of said turbulent diluent stream prior to said step of adding said plurality of chemically incompatible concentrate solutions to said turbulent diluent stream.

10. The method of claim 1, wherein said step of adding a plurality of chemically incompatible concentrate solutions to said turbulent diluent stream comprises the step of:

adding at least two of said plurality of chemically incompatible concentrate solutions to said turbulent diluent stream in such a manner that none of the ingredients of said at least two of said plurality of chemically incompatible concentrate solutions adversely chemically react with each other, wherein said plurality of chemically incompatible concentrate solutions include solutions from the set of: an acid soluble concentrate solution subgroup, a group I salt concentrate solution subgroup, a group II salt concentrate solution subgroup, and a base soluble concentrate solution subgroup.

11. The method of claim 3, wherein said step of adding a plurality of chemically incompatible concentrate solutions to said turbulent diluent stream comprises the step of:

adding a base soluble concentrate solution to said turbulent diluent stream in a manner that is approximately radially disposed to the addition of a group II salt concentrate solution so that none of the ingredients of said base soluble solution and said group II salt solution adversely chemically react with each other.

12. The method of claim 4, wherein said step of adding a plurality of chemically incompatible concentrate solutions to said turbulent diluent stream comprises the steps of:

adding an acid soluble concentrate solution to said turbulent diluent stream; and

adding a group II salt concentrate solution to said turbulent diluent stream at a position linearly disposed from the addition of said acid soluble concentrate solution in such a manner that none of the ingredients of said acid soluble concentrate solution and said group II salt concentrate solution adversely chemically react with each other.

13. An apparatus for continuously mixing aqueous solutions comprising:

a static mixing chamber, having a an upstream end and a downstream end, for creating a turbulent diluent stream from a diluent introduced from the upstream end of said static mixing chamber; and

a plurality of injection ports, incorporated into said static mixing chamber, for introducing a plurality of chemically incompatible concentrate solutions to said turbulent diluent stream in such a manner that none of the ingredients of the concentrate solutions adversely chemically react with each other to thereby form a diluted mixture of said concentrate solutions at the downstream end of said static mixing chamber.

14. The apparatus of claim 13, wherein said plurality of injection ports comprise a plurality of injection ports that are radially disposed from one another.

15. The apparatus of claim 13, wherein said plurality of injection ports comprise a plurality of injection ports that are linearly disposed from one another.

16. The apparatus of claim 13, wherein said plurality of injection ports includes:

a first plurality of injection ports that are radially disposed from one another; and

at least one injection port that is linearly disposed from said first plurality of injection ports.

17. The apparatus of claim 13, wherein said plurality of injection ports includes:

a first plurality of injection ports incorporated into said static mixing chamber and radially disposed from one another;

a second plurality of injection ports incorporated into said static mixing chamber, radially disposed from one another, and linearly disposed from said first plurality of injection ports; and

at least one injection port incorporated into said static mixing chamber, linearly disposed from both said first plurality of injection ports and said second plurality of injection ports.

18. The apparatus of claim 16, wherein one of said first plurality of injection ports introduces a base soluble concentrate solution to said turbulent diluent stream.

19. The apparatus of claim 16, wherein one of said first plurality of injection ports introduces an acid soluble concentrate solution to said turbulent diluent stream.

20. The apparatus of claim 16, wherein one of said first plurality of injection ports introduces a group I salts concentrate solution to said turbulent diluent stream.

21. The apparatus of claim 16, wherein one of said first plurality of injection ports introduces a group II salts concentrate solution to said turbulent diluent stream.

22. The apparatus of claim 16, wherein said at least one injection port introduces a concentrate solution into said turbulent diluent stream.

23. The apparatus of claim 16, wherein said at least one injection port introduces a solution into said turbulent diluent stream prior to said first plurality of injection ports introducing any concentrate solutions into said turbulent diluent stream.

24. The apparatus of claim 23, wherein said at least one injection port introduces an acid solution into said turbulent diluent stream.

25. The apparatus of claim 23, wherein one of said at least one injection port introduces a caustic solution into said turbulent diluent stream.

26. The apparatus of claim 16, wherein said first plurality of injection ports do not introduce both a group II salts concentrate solution and an acid soluble concentrate solution into said turbulent diluent stream.

27. The apparatus of claim 17, wherein one of said first plurality of injection ports introduces a base soluble concentrate solution to said turbulent diluent stream.

28. The apparatus of claim 17, wherein one of said first plurality of injection ports introduces an acid soluble concentrate solution to said turbulent diluent stream.

29. The apparatus of claim 17, wherein one of said first plurality of injection ports introduces a group I salts concentrate solution to said turbulent diluent stream.

30. The apparatus of claim 17, wherein one of said first plurality of injection ports introduces a group II salts concentrate solution to said turbulent diluent stream.

31. The apparatus of claim 17, wherein said at least one injection port introduces a solution into said turbulent diluent stream prior to any of said first plurality of injection ports introducing a concentrate solution into said turbulent diluent stream.

32. The apparatus of claim 17, wherein said at least one injection port introduces a concentrate solution into said turbulent diluent stream.

33. The apparatus of claim 32, wherein said at least one injection port introduces an acid solution into said turbulent diluent stream.

34. The apparatus of claim 32, wherein one of said at least one injection port introduces a caustic solution into said turbulent diluent stream.

35. The apparatus of claim 17, wherein said first plurality of injection ports do not introduce both a group II salts concentrate solution and an acid soluble concentrate solution into said turbulent diluent stream.

36. The apparatus of claim 17, wherein said second plurality of injection ports do not introduce both a group II salts concentrate solution and an acid soluble concentrate solution into said turbulent diluent stream.

37. The apparatus of claim 17, wherein one of said first plurality of injection ports introduces a base soluble concentrate solution into said turbulent diluent stream and one of said second plurality of injection ports introduces a group II salt concentrate solution into said turbulent diluent stream.

38. A system for continuously preparing medium from concentrated solutions comprising:

a diluent system that provides a diluent;

a concentrate system that provides a plurality of chemically incompatible concentrate solutions; and

a medium mixing system that receives said diluent, that creates a turbulent diluent stream from said diluent, and that adds said plurality of concentrate solutions to said turbulent diluent stream in such a manner so that none of the

ingredients of said plurality of concentrate solutions adversely chemically react with each other.

39. The system of claim 38, wherein said medium mixing system comprises:

a static mixing chamber that receives said diluent and that creates said turbulent diluent stream from said diluent; and

a plurality of injection ports incorporated into said static mixing chamber that adds said plurality of concentrate solutions to said turbulent diluent stream.

40. The system of claim 39, wherein said medium mixing system further comprises:

a pump associated with each of said plurality of injection ports for controlling a flow of said plurality of concentrate solutions into said static mixing chamber.

41. The system of claim 39, wherein a first of said plurality of injection ports adds a first concentrate solution into said static mixing chamber sufficiently in advance of a second of said plurality of injection ports adding a second concentrate solution into said static mixing chamber to prevent the ingredients of said first and second concentrate solutions from adversely chemically reacting with one another.

42. The system of claim 41, wherein said plurality of injection ports comprises:

a first plurality of injection ports radially disposed from one another around an approximate circumference of said static mixing chamber.

43. The system of claim 42, wherein said plurality of injection ports further comprises:

a second plurality of injection ports radially disposed from one another around an approximate circumference of said static mixing chamber and linearly disposed along a flow path of said static mixing chamber.

44. The system of claim 42, wherein said plurality of injection ports further comprises:

at least one injection port linearly disposed along a flow path of said static mixing chamber from said first plurality of injections ports.

45. The system of claim 43, wherein said plurality of injection ports further comprises:

at least one injection port linearly disposed along a flow path of said static mixing chamber from said first and said second plurality of injection ports.

46. The system of claim 44, wherein said at least one injection port is linearly disposed upstream along the flow path from said first plurality of injection ports.

47. The system of claim 45, wherein said at least one injection port is linearly disposed upstream along the flow path from said first and said second plurality of injection ports.

48. The system of claim 46, wherein said at least one injection port adds a solution that adjusts a pH level of said turbulent diluent stream.

49. The system of claim 48, wherein said at least one injection port adds an acid solution to said turbulent diluent stream.

50. The system of claim 48, wherein said at least one injection port adds a caustic solution to said turbulent diluent stream.

51. The system of claim 42, wherein said first plurality of injection ports adds at least one of the set of an acid soluble concentrate solution, a group I salts concentrate solution, and a sodium hydroxide concentrate solution.

52. The system of claim 43, wherein said first plurality of injection ports adds at least one of the set of an acid soluble concentrate solution, a group I salts concentrate solution, and a sodium hydroxide concentrate solution.

53. The system of claim 43, wherein said second plurality of injection ports add at least one of the set of a group II salts concentrate solution and a base soluble concentrate solution.

54. A system for continuously mixing aqueous solutions, comprising:

means for providing a flow controlled turbulent diluent stream;

means for adding a plurality of chemically incompatible concentrate solutions to said turbulent diluent stream in such a manner that none of the ingredients of the concentrate solutions adversely chemically react with each other; and

means for forming a diluted mixture of said concentrate solutions.

55. The system of claim 54, wherein said means for adding further comprises:

means for adding a first of said chemically incompatible concentrate solutions to said turbulent diluent stream sufficiently in advance of the addition of a second of said chemically incompatible concentrate solutions to prevent the ingredients of said first and said second chemically incompatible concentrate solutions from adversely chemically reacting with each other.

56. The system of claim 55, wherein said means for adding further comprises:

means for adding said first of said chemically incompatible concentrate solutions to said turbulent diluent stream in a manner that is approximately

radially disposed from the addition of said second of said chemically incompatible concentrate solutions to prevent the ingredients of said first and said second chemically incompatible concentrate solutions from adversely chemically reacting with each other.

57. The system of claim 55, wherein said means for adding further comprises:

means for adding said first of said chemically incompatible concentrate solutions to said turbulent diluent stream linearly upstream of the addition of said second of chemically incompatible concentrate solutions to prevent the ingredients of said first and said second chemically incompatible concentrate solutions from adversely chemically reacting with each other.

58. The system of claim 55, further comprising:

means for adjusting a pH level of said turbulent diluent stream.

59. The system of claim 58, wherein said means for adjusting a pH level comprises:

means for adding an acid solution to said turbulent diluent stream to reduce said pH level.

60. The system of claim 58, wherein said means for adjusting a pH level comprises:

means for adding a caustic solution to said turbulent diluent stream to increase said pH level.

61. The system of claim 58, wherein said means for adjusting a pH level comprises:

means for adding an acid solution to said turbulent diluent stream to decrease said pH level; and

means for adding a caustic solution to said turbulent diluent stream to increase said pH level.

62. The system of claim 58, wherein said means for adjusting a pH level comprises:

means for adjusting a pH level of said turbulent diluent stream before said means for adding adds any of said plurality of chemically incompatible concentrate solutions to said turbulent diluent stream.

63. The system of claim 54, wherein said means for adding a plurality of chemically incompatible concentrate solutions to said turbulent diluent stream comprises:

means for adding at least two of said plurality of chemically incompatible concentrate solutions to said turbulent diluent stream in such a manner that none of the ingredients of said at least two of said plurality of chemically incompatible concentrate solutions adversely chemically react with each other, wherein said plurality of chemically incompatible concentrate solutions include solutions from the set of: an acid soluble concentrate solution subgroup, a group I salt concentrate solution subgroup, a group II salt concentrate solution subgroup, and a base soluble concentrate solution subgroup.

64. The system of claim 56, wherein said means for adding a plurality of chemically incompatible concentrate solutions to said turbulent diluent stream comprises:

means for adding a base soluble concentrate solution to said turbulent diluent stream in a manner that is approximately radially disposed from the addition of a group II salt concentrate solution so that none of the ingredients of said base soluble solution and said group II salt solution adversely chemically react with each other.

65. The system of claim 57, wherein said means for adding a plurality of chemically incompatible concentrate solutions to said turbulent diluent stream comprises:

means for adding an acid soluble concentrate solution to said turbulent diluent stream; and

means for adding a group II salt concentrate solution to said turbulent diluent stream at a position linearly disposed from the addition of said acid soluble concentrate solution in such a manner that none of the ingredients of said acid soluble concentrate solution and said group II salt concentrate solution adversely chemically react with each other.

66. A computer program product for use with a computer system, said computer program product comprising:

a computer usable medium having computer readable program code means embodied in said medium for causing the computer system to control the continuous preparation of medium from concentrated solutions, said computer readable program code means comprising:

computer readable program code means for enabling the computer system to control a flow of a diluent into a static mixing chamber, wherein said static mixing chamber provides a turbulent diluent stream in accordance with said flow;

computer readable program code means for enabling the computer system to control a flow of a plurality of chemically incompatible concentrate solutions into said static mixing chamber, wherein said plurality of concentrate solutions admix with said turbulent diluent stream in such a manner that none of the ingredients of the concentrate solutions adversely chemically react with each other to thereby form a diluted mixture of said concentrate solutions.

67. The computer program product of claim 66, further comprising:

computer readable program code means for enabling the computer system to monitor a flow of said diluted mixture out of said static mixing chamber as measured by a flow sensor.

68. The computer program product of claim 67, further comprising:

computer readable program code means for enabling the computer system to adjust the flow of said diluent and the flow of said plurality of concentrate solutions based on the flow of said diluted mixture.

69. The computer program product of claim 66, further comprising:

computer readable program code means for enabling the computer system to monitor a level of said diluted mixture in a medium surge tank; and

computer readable program code means for enabling the computer system to adjust the flow of said diluted mixture into said medium surge tank.

70. The computer program product of claim 69, wherein said computer readable program code means for enabling the computer system to adjust the flow of said diluted mixture into said medium surge tank comprises:

computer readable program code means for enabling the computer system to adjust the flow of said diluent into said static mixing chamber; and

computer readable program code means for enabling the computer system to adjust the flow of said plurality of concentrate solutions into said static mixing chamber.

71. The computer program product of claim 66, further comprising:

computer readable program code means for enabling the computer system to monitor a parameter of said diluted mixture using a sensor located downstream from said static mixing chamber to determine whether said diluted mixture is acceptable.

72. The computer program product of claim 71, further comprising:

computer readable program code means for enabling the computer system to control a diverter valve that directs said diluted mixture based on whether said diluted mixture is acceptable.

73. The computer program product of claim 71, further comprising:

computer readable program code means for enabling the computer system to monitor a pH level of said diluted mixture using at least one pH sensor located downstream of said static mixing chamber.

74. The computer program product of claim 73, further comprising:

computer readable program code means for enabling the computer system to adjust a pH level of said diluted mixture.

75. The computer program product of claim 74, wherein said computer readable program code means for enabling the computer system to adjust a pH level of said diluted mixture comprises:

computer readable program code means for enabling the computer system to adjust a flow of an acid solution into said static mixing chamber to thereby adjust the pH level of said diluted mixture.

76. The computer program product of claim 74, wherein said computer readable program code means for enabling the computer system to adjust a pH level of said diluted mixture comprises:

computer readable program code means for enabling the computer system to adjust a flow of a caustic solution into said static mixing chamber to thereby adjust the pH level of said diluent stream.

77. The computer program product of claim 74, wherein said computer readable program code means for enabling the computer system to adjust a pH level of said diluted mixture comprises:

computer readable program code means for enabling the computer system to adjust a flow of an acid solution into said static mixing chamber; and

computer readable program code means for enabling the computer system to adjust a flow of a caustic solution into said static mixing chamber.

78. The computer program product of claim 70, wherein said computer readable program code means for enabling the computer system to adjust the flow of said plurality of concentrate solutions into said static mixing chamber comprises:

computer readable program code means for enabling the computer system to adjust a flow rate of an acid soluble concentrate solution into said static mixing chamber.

79. The computer program product of claim 70, wherein said computer readable program code means for enabling the computer system to adjust the flow of said plurality of concentrate solutions into said static mixing chamber comprises:

computer readable program code means for enabling the computer system to adjust a flow of a group I salt concentrate solution into said static mixing chamber.

80. The computer program product of claim 70, wherein said computer readable program code means for enabling the computer system to adjust the flow of said plurality of concentrate solutions into said static mixing chamber comprises:

computer readable program code means for enabling the computer system to adjust a flow of a group II salt concentrate solution into said static mixing chamber.

81. The computer program product of claim 70, wherein said computer readable program code means for enabling the computer system to adjust the flow of said plurality of concentrate solutions into said static mixing chamber comprises:

computer readable program code means for enabling the computer system to adjust a flow of a base soluble concentrate solution into said static mixing chamber.

82. A medium product produced by the method of claim 1.

83. The medium product of claim 82, wherein said medium product is selected from the group consisting of a 1x cell culture medium, a concentrated cell culture medium, and a buffered salt solution.